

## A-Core Container

# Pulsation at the low voltage end of the DC inverter



48V 100Ah



## Overview

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In the two-stage converter such as PV renewable energy system, the second harmonic fluctuation exists in the DC voltage due to the power coupling between the DC-link and AC system. The second harmoni.

Why does a two-stage single-phase inverter have a second harmonic current?

1. Introduction In the two-stage single-phase inverter, the second harmonic current with twice output voltage frequency exists in the former DC converter because the instantaneous output power of the latter inverter contains the pulsating power of twice the output voltage frequency.

What determines the pulse frequency of an inverter?

The frequency of the sinusoidal desired voltages determines the fundamental frequency and those of the modulation voltage the pulse frequency of the inverter.

What does  $U_{DC}$  mean on a DC inverter?

When the DC link voltage of the inverter is  $u_{dc}$ , the modulation waves  $u_{s1}$  and  $u_{s2}$  can be taken as (1), (2) (1)  $u_{s1} = \frac{1}{2} U_{dc} M \cos(\omega t)$  (2)  $u_{s2} = \frac{1}{2} U_{dc} M \cos(\omega t + \pi)$  where  $M$  is the modulation index ( $0 < M < 1$ );  $\omega$  is the angular frequency of AC side output voltage.  $u_{dc}$  is the DC link voltage. Fig. 1.

Is there an adaptive DC-link voltage control method for two-stage photovoltaic inverter?

Abstract: This paper proposes an adaptive dc-link voltage control method for the two-stage photovoltaic inverter during the low voltage ride-through (LVRT) operation period.

What is the input current of an inverter bridge?

At first an ideal smoothed input dc-voltage as well as sinusoidal currents at the output of the inverter bridge is presupposed. The results show that the input current of the inverter bridge consists out of a dc-component with higher-

frequency portions.

What are pulse inverters used for?

Today pulse inverters are used world-wide within many ranges for ac power supply, for drive train engineering and for frequency conversion. The dc-link capacitor in the power parts contributes thereby substantially to the volume, to the weight and to the costs of such inverters.

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